

**WHAT IS CLAIMED IS:**

1       1. A system for intensity control of a pixel having  $2^N$   
2 gray-scale tones, comprising:

3              a pixel having  $2^s$  subpixels, two of the subpixels with  
4 the lowest light output having a light output ratio of about  
5 1:1; and

6              a driver to apply a pulse-width modulated waveform to the  
7 subpixels, the modulated waveform having  $2^{N-s}$  pulses of  
8 different pulse widths.

1       2. The system of claim 1, the least-significant pulse  
2 width and the next-to-the-least-significant pulse width each  
3 have a width of  $2^s/N$ .

1       3. The system of claim 2, the least-significant pulse  
2 width being applied to a one of the two subpixels with the  
3 lowest light output to obtain a first gray-scale tone.

1       4. The system of claim 2, the next-to-the-least-  
2 significant pulse width being applied to the two subpixels  
3 with the lowest light output to obtain a second gray-scale  
4 tone.

1       5. The system of claim 2, the least-significant pulse  
2 width being applied to a one of the two subpixels with the

3       lowest light output and the next-to-the-least-significant  
4       pulse width being applied to the two subpixels with the lowest  
5       light output to obtain a third gray-scale tone.

1           6.   The system of claim 1, the 2<sup>s</sup> subpixels being  
2       concentric.

1           7.   A system for intensity control of a pixel,  
2       comprising:

3           a first subpixel;  
4           a second subpixel, the first subpixel and the second  
5       subpixel having a light output ratio of about 1:1; and  
6           a driver to apply a pulse-width modulated waveform to the  
7       first subpixel and the second subpixel, the modulated waveform  
8       having a first pulse and a second pulse, the first pulse being  
9       applied to the first subpixel and the second pulse being  
10      applied to the first subpixel and the second subpixel.

1           8.   The system of claim 7, the first pulse and second  
2       pulse being of about equal width.

1           9.   The system of claim 8, the modulated waveform having  
2       a third pulse being about twice the width of the first pulse,  
3       the third pulse being applied to the first subpixel and the  
4       second subpixel.

5       10. The system of claim 8, the first pulse and second  
6       pulse being of unequal amplitude

7       11. The system of claim 7, the first subpixel and the  
8       second subpixel being concentric.

1       12. A method of intensity control of a pixel,  
2       comprising:

3           applying a first pulse with a first width to a first  
4       subpixel of the pixel to produce a first gray-scale tone; and  
5           applying a second pulse with the first width to the first  
6       subpixel and a second subpixel of the pixel to produce a  
7       second gray-scale tone.

1       13. The method of claim 12 further comprising applying  
2       the first pulse to the first subpixel and the second pulse to  
3       the first subpixel and the second subpixel to produce a third  
4       gray-scale tone.

1       14. The method of claim 12 further comprising applying a  
2       third pulse with a second width about twice the first width to  
3       the first subpixel and the second subpixel to produce a fourth  
4       gray-scale tone.

1       15. The method of claim 12 further comprising applying  
2       the first pulse to the first subpixel and a third pulse with a

3 second width about twice the first width to the first subpixel  
4 and the second subpixel to produce a fifth gray-scale tone.

1 16. A system for intensity control of a pixel,  
2 comprising:

3 a pixel; and

4 a driver to apply a pulse-width and amplitude modulated  
5 waveform to the pixel, the modulated waveform having at least  
6 two pulses of different pulse widths, a first one of the at  
7 least two pulses having a first width and a first amplitude  
8 and a second one of the at least two pulses having about the  
9 first width and a second amplitude greater than the first  
10 amplitude, the first pulse being applied to the pixel to  
11 produce a first gray-scale tone and the second pulse being  
12 applied to the pixel to produce a second gray-scale tone.

1 17. The system of claim 16, the first pulse and the  
2 second pulse being applied to the pixel to produce a third  
3 gray-scale tone.

1 18. The system of claim 16, the modulated waveform  
2 having a third pulse being about twice the width of the first  
3 pulse and twice the amplitude of the first pulse, the third  
4 pulse being applied to the pixel to produce a fourth gray-  
5 scale tone.

1       19. The system of claim 16, the second one of the at  
2 least two pulses having the second amplitude about twice the  
3 first amplitude.

1       20. A method of intensity control of a pixel,  
2 comprising:

3             applying a first pulse with a first width and a first  
4 amplitude to the pixel to produce a first gray-scale tone; and

5             applying a second pulse with the first width and a second  
6 amplitude of about twice the first amplitude to the pixel to  
7 produce a second gray-scale tone.

1       21. The method of claim 20 further comprising applying  
2 the first pulse and the second pulse to the pixel to produce a  
3 third gray-scale tone.

1       22. The method of claim 20 further comprising applying a  
2 third pulse with a second width about twice the first width  
3 and the second amplitude to the pixel to produce a fourth  
4 gray-scale tone.